

D8
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17. (Twice Amended) The X-ray device as claimed in claim 15, wherein the means for measuring the respiratory motion signal include one of an ultrasound device, an abdominal belt for measuring motion of the diaphragm, and a resistance measuring device for measuring resistance of an abdominal region of the patient.

Please add the following new claims.

-- 18. A method for acquiring a three-dimensional image data set of a moving organ of a body of a patient, comprising the steps of:

D9

defining a plurality of different positions of an X-ray device including an X-ray source and an X-ray detector, the X-ray positions being situated in a common plane;

detecting a motion signal related to the periodic motion of the organ and including a low-motion phase;

simultaneously with detection of the motion signal, moving the X-ray device to each of the X-ray positions and when the X-ray device is in each of the X-ray positions, determining whether a low-motion phase of the motion signal is present and if so, acquiring a projection data set;

continuing the movement of the X-ray device to all of the X-ray positions until a projection data set is acquired when the X-

ray device is in each of the X-ray positions; and

using the projection data sets acquired during the low-motion phases for the formation of the three-dimensional image data set.

19. The method of claim 18, further comprising the steps of:

maintaining the X-ray device in each X-ray position when the low-motion phase of the motion signal is not present; and

continuously determining whether the low-motion phase is present until a positive determination is obtained and thereafter acquiring the projection data set and then moving the X-ray device to another X-ray position.

20. The method of claim 18, further comprising the steps of:

correlating the presence of the X-ray device in each of the X-ray positions and the acquisition of the projection data sets based on the motion signal such that the X-ray device is present in a new X-ray position at a fixed instant within a given phase of motion; and then

acquiring at the same time a correction data set so that all projection data sets are acquired at the same instant within a phase of motion.

21. The method of claim 18, further comprising the steps
of:

defining a sequence of the X-ray positions; and

moving the X-ray device successively through each of the X-
ray positions in the defined sequence of X-ray positions.--
